LWG LOWER WILLAMETTE GROUP

Chairperson: Bob Wyatt, NW Natural
Treasurer: Fred Wolf, Legacy Site Services for Arkema

October 7, 2009

Chip Humphrey
Eric Blischke
U.S. Environmental Protection Agency, Region 10
805 SW Broadway, Suite 500
Portland, OR 97205

Re: Response to EPA RAO Directive **Portland Harbor Superfund Site; Administrative Settlement Agreement and Order on Consent for Remedial Investigation/Feasibility Study; Docket No. CERCLA 10-2001-0240 --- Portland Harbor Remedial Action Objectives**

Chip and Eric:

Thank you for your letter of September 30, 2009. Thank you also for the time that EPA and the support agency team has devoted to discussions of remedial action objectives (RAOs) for the Portland Harbor Superfund Site. We appreciate the extension that you granted the LWG to the deadline to dispute your original August 7 RAO directive. That allowed us to meet with you on September 8 and September 25 to discuss these issues, and we feel those meetings have resulted in a clearer and better set of RAOs for the Site.

We are writing to let you know that LWG will comply with EPA's directive to incorporate the revised draft RAOs as set forth in your September 30 letter into the draft feasibility study (FS). To be clear, although the LWG will proceed to incorporate the RAOs as directed, there are still aspects of the RAOs with which LWG members disagree. Thus, although the LWG will use these RAOs as directed in the FS, LWG members fully reserve the right to object to remedial action decisions made based on these RAOs.

The LWG has reached this position because our meetings with EPA and the support agencies have provided us with some confidence that there will be continued discussion and flexibility as these RAOs are applied in the FS and beyond. As the RAOs state, these RAOs will be refined after EPA completes its review of the draft human health and ecological risk assessments, and we too expect further discussion about how to incorporate these RAOs into the draft FS. In order to set the stage for these continued discussions, we thought it would be most efficient to summarize key aspects of the discussions we had in September and identify some of the areas where we may continue to have concerns, depending on how the RAOs are used and refined through the FS and Record of Decision.

One area of concern in which we had profitable discussion was the extent to which the RAOs address contaminated groundwater plumes. Neither the Administrative Settlement Agreement

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and Order on Consent nor the Scope of Work (SOW) requires the LWG to evaluate remedies for contaminated groundwater plumes. Rather, the LWG's obligation was to identify source areas, including groundwater, contributing contamination to the in-water portion of the Site and refer those to EPA and DEQ for follow up with respect to upland source control. The LWG also agreed in the SOW to assess the risk of groundwater that enters the river or daylights in beach seeps where humans can become exposed to it as surface water, which the LWG has done. Thus, in agreeing not to dispute the two RAOs addressing contaminated groundwater plumes, we are relying on the explanation contained in the RAOs that "groundwater plumes will be controlled ** through upland source control actions." We are sure there will be continued discussions between EPA, the LWG and DEQ as to how this will be accomplished and what the LWG should assume with respect to those upland actions.

We also had good discussion of another area of concern regarding identification of applicable or relevant and appropriate requirements (ARARs). Each RAO states that it includes complying with "identified ARARs," which we understand refers to any ARARs ultimately identified that are associated with the RAO itself.[1] However, those ARARs have not been determined, and that determination will not be made finally until the Record of Decision. On the other hand, for purposes of the evaluation of alternatives in the FS, we will need to have some understanding of how potential ARARs will be evaluated. We discussed with EPA and its partners EPA's current view on the ARARs likely associated with some of these RAOs and how those ARARs could be accounted for in the FS. We appreciate the frank conversations, which have allowed us to form a better foundation for the alternatives evaluation in the FS. However, we will need continued discussion about these issues, at least with respect to the following:

- **Whether and, if so, how a human health fish and shellfish consumption surface water quality criteria would be evaluated**. The LWG has expressed concern about having a human health bioaccumulation-based RAO for surface water at all, let alone a fish and shellfish consumption-based ARAR. EPA's *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites (Sediment Guidance)* (December 2005), section 2.4.1, states that all RAOs should be achievable by remediation of the site and should not be dependent on area-wide goals outside the scope of the project. A human health bioaccumulation RAO for surface water is not achievable for many contaminants solely through this project because of other significant sources contributing to the contamination of surface water (e.g., upland, upstream and atmospheric). Further, consistent with direction in the Programmatic Work Plan, the LWG is approaching the bioaccumulation risk pathway by focusing on the sediments and developing sediment PRGs that address bioaccumulation. The *Sediment Guidance* states that ultimate remediation goals should be established following the same methodology as the risk evaluation; in this case that would be through sediment PRGs and not by reliance on a surface water quality criterion. For these reasons, among others, one could argue that the

[1] *Contaminated Sediment Remediation Guidance for Hazardous Waste Sites* (December 2005) at 2-15; 40 CFR 300.430(e)(2)(i). It is also important to note that ARARs in the RAO context are distinct from action-specific ARARs that will be identified during the FS stage based on the alternatives evaluated.

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surface water fish-consumption criteria are not "relevant and appropriate" to the circumstances of the Site, and therefore are not legally required to be ARARs.

Given that EPA has required that this be identified as an RAO, we appreciate that the RAO text specifically acknowledges that, while Site remedies can contribute to reduction and elimination of Portland Harbor PCB fish advisories, the complete elimination of those advisories will require other Portland Harbor source control and other watershed-wide PCB reductions efforts. At the least, the RAO will need to be applied looking at multiple lines of evidence involving multiple exposure media (sediment, surface water and tissue), with account taken of the relative contributions from the site sources and offsite sources.

In our discussions it became clear that, if fish and shellfish consumption-based surface water quality criteria are identified as ARARs, there are several issues that will need to be resolved regarding assessment of compliance with the ARARs in the FS evaluation of alternatives, such as the scale over which ARARs would be applied. In that instance, we discussed with EPA using approaches similar to that in the risk assessment, rather than point-by-point application. Similarly, given that the criteria are developed based on assumptions of many years of exposure, we will need to address the temporal scale for evaluation. Finally, at least with respect to some contaminants of concern, we discussed that the criteria are exceeded in upstream surface water and even in rainwater falling in the Portland area. Thus, we will need to discuss application of EPA's background policy with respect to these contaminants. To address all of these issues may require that the objective would be a reduction in concentrations over time, and the FS alternatives analysis would evaluate the relative percent reductions in surface water concentrations across alternatives. Finally, we also discussed that, under this scenario, for some substances, we have already identified that we may need to evaluate an ARAR waiver.

- **Whether transition zone water would be evaluated against human health fish and shellfish consumption-based surface water quality criteria as ARARs.** Because the fish and shellfish consumption water quality criteria were developed based on water column exposures, they are clearly not "applicable" and, to the LWG, do not appear to be "relevant and appropriate" to exposures in the transition zone water.[2] We have discussed

[2] "In determining whether or not any water quality criteria under the Clean Water Act is relevant and appropriate under the circumstances of the release . . . [EPA] shall consider the designated or potential use of the surface or groundwater, the environmental media affected, the purposes for which such criteria were developed, and the latest information available." 42 U.S.C. § 9621(d)(2)(B)(i).

To be "relevant and appropriate," the criteria must "address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site." 40 CFR 300.5.

"In evaluating relevance and appropriateness, the [following] factors shall be examined, where pertinent, to determine whether a requirement addresses problems or situations sufficiently similar to the circumstances of the release or remedial action contemplated, and whether the requirement is well-suited to the site, and therefore is both relevant and appropriate. The pertinence of each of the following factors will depend, in part, on whether a requirement addresses a chemical, location or action. The following comparisons shall be made, where pertinent, to determine relevance and appropriateness:

(i) The purpose of the requirement and the purpose of the CERCLA action;

(ii) The medium regulated or affected by the requirement and the medium contaminated or affected at the CERCLA site;

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respiratory mechanisms used by shellfish that reside in transition zone water that are different than those that live in surface water. In particular, it is the clam consumption bioaccumulation scenario that, at EPA direction, has been evaluated in the human health risk assessment that may be driving application of these criteria to transition zone water. Clams are dependent upon food being brought to them by flowing water, so they extend siphons into the water column above the sediment surface and pump overlying water across the gills, through the mantle cavity and out the siphon. This action limits exposure to porewater, while supporting both feeding and respiration. (Memorandum to Chip Humphrey and Eric Blischke, EPA, from Windward, October 7, 2009.). For this reason, a direct application of human health fish and shellfish consumption water quality criteria to transition zone water does not seem relevant and appropriate. We understand that you will be discussing this issue further with EPA headquarters. If there are any other sites where such criteria have been applied to transition zone water, we would appreciate that information so we can see how they were applied there and understand how they were determined to be relevant and appropriate.

- **Maximum Contaminant Levels (MCLs) as ARARs in surface water.** We have explained that the beneficial use designation of the main stem Willamette River for public and private domestic water supply includes the specific modifier that the designation assumes use "with adequate pretreatment and natural quality that meets drinking water standards." OAR 340-041-0340, Table 340A. Nonetheless, in the risk assessment, EPA directed that we evaluate surface water against MCLs assuming that no treatment occurs. We noted in our conversations that this screening analysis resulted in no exceedances of MCLs (based on vertically integrated samples), and therefore this potential ARAR is met for surface water. In our recent discussions, EPA affirmed that the evaluation in the FS should use the methodologies in the risk assessment (again assuming no treatment, but where vertically integrated samples were evaluated against MCLs) as a guide to the evaluation against MCLs in the FS. Other comparative methodologies could be discussed in the evaluation of uncertainty. We also encourage EPA to refine this RAO consistent with the favorable results of the risk assessment with respect to MCLs, after EPA has had an opportunity to review the results.
- **MCLs as ARARs in deeper groundwater and transition zone water.** EPA has confirmed that the FS evalution of groundwater (which for this purpose would include transition zone water) against MCLs would be in the area of contaminated groundwater plumes only. This evaluation against MCLs is something that will require further discussion. EPA has not been able to point to any other similar sediment site where such an evaluation has been done. We discussed that the FS will need to make a general

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(iv) The actions or activities regulated by the requirement and the remedial action contemplated at the CERCLA site;
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(vii) Any consideration of use or potential use of affected resources in the requirement and the use or potential use of the affected resource at the CERCLA site." 40 CFR 300.400(g)(2).

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assumption that upland source controls will be effective, although it may be difficult to estimate the effect of these controls on deeper groundwater beneath the river. This again may be something against which alternatives will be evaluated on a comparative basis, including an evaluation of the uncertainty of the expected and reasonable time frames for achievement of MCLs. It is our understanding that the FS evaluation should look at attainment across some "vertical slice" of the entire plume rather than isolating transition zone water as a separate point of compliance.

- **Evaluation of chronic aquatic life protection criteria in surface water**. Application of these criteria in the FS will need to take into account background, and the particulars of that evaluation, including the scale of application (which will be at a population level), have yet to be determined. Application will also need to account for relative contributions from site sources and offsite sources.
- **Evaluation of chronic aquatic life protection criteria in transition zone water**. The LWG has raised concern about "relevance and appropriateness" of chronic aquatic life protection criteria to transition zone water given the different mechanisms used by biota in the sediments to limit their exposure to sediment pore water. We understand that EPA is not comfortable with applying a dilution factor to account for these mechanisms, but published, peer reviewed scientific literature explains how and why these mechanisms occur and some means of accounting for them will need to be applied in an FS evaluation of compliance with these criteria. An FS evaluation of compliance with these criteria also will need to look at a population level scale of exposure.
- **RAO Refinement**. As EPA recognized in its September 30, 2009 letter to the LWG, the RAOs have been drafted without the benefit of EPA's review of the Baseline Human Health and Ecological Risk Assessments, which were submitted to EPA on September 2 and September 23, 2009. We agree with EPA that these draft RAOs will be refined based on the risk assessment results, and that we will have further discussion on incorporation of the RAOs into the Feasibility Study. One example is the fact that the ecological risk assessment is based on populations, whereas the current draft RAOs are not clear on this issue. We understand that the RAOs will be applied, however, on a population level basis consistent with the ecological risk assessment. This is just one example of refinement that could occur once EPA has completed its review of the baseline risk assessments.

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We look forward to continued discussion of these issues as we move forward with the FS.

Sincerely,

Bob Wyatt

cc: Confederated Tribes and Bands of the Yakama Nation
Confederated Tribes of the Grand Ronde Community of Oregon
Confederated Tribes of Siletz Indians of Oregon
Confederated Tribes of the Umatilla Indian Reservation
Confederated Tribes of the Warm Springs Reservation of Oregon
Nez Perce Tribe
Oregon Department of Fish & Wildlife
United States Fish & Wildlife
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